

A New Genus, *Hemiacanthomysis*, for *Acanthomysis dimorpha* (Crustacea: Mysidacea: Mysidae)

Kouki Fukuoka¹ and Masaaki Murano²

¹ Department of Aquatic Biosciences, Tokyo University of Fisheries,
4-5-7 Konan, Minato-ku, Tokyo, 108-8477 Japan

Present address: Department of Zoology, National Science Museum,
3-23-1 Hyakunin-cho, Shinjuku-ku, Tokyo, 169-0073 Japan

² Institute of Environmental Ecology, METOCEAN Environment Inc.,
1334-5 Riemon, Ooigawa-cho, Shida-gun, Shizuoka, 421-0212 Japan

(Received 10 September 2001; Accepted 27 February 2002)

A new monotypic genus, *Hemiacanthomysis*, is established for *Acanthomysis dimorpha* Ii, 1936. The new genus is distinguished from *Acanthomysis* and its related genera by the endopod of the uropod, which is armed with numerous spines along the inner margin, and the telson, which is armed with subequal spines all along its lateral margins. A complete redescription is provided for the male of *H. dimorpha*, comb. nov.

Key Words: Crustacea, Mysidacea, *Hemiacanthomysis* gen. nov., *Acanthomysis dimorpha*.

Introduction

Since Holmquist (1979, 1980, 1981a, 1981b) recognized the taxonomic confusion in the genus *Acanthomysis* Czerniavsky, 1882, nine genera have been established for the accommodation of species detached from *Acanthomysis* (Holmquist 1979, 1980, 1981a, 1981b; Fukuoka and Murano 2000a, 2000b, 2001). *Acanthomysis dimorpha* Ii, 1936, however, has not been revised and has remained in *Acanthomysis s. lat.* In this paper we propose the establishment of a new genus, *Hemiacanthomysis*, for *A. dimorpha*.

The body length was measured from the tip of the rostrum to the posterior end of the telson, excluding spines. The specimens examined are deposited in the National Science Museum, Tokyo (NSMT).

Genus *Hemiacanthomysis* gen. nov.

Type species. *Acanthomysis dimorpha* Ii, 1936.

Diagnosis. Carapace anteriorly produced into short, triangular rostral plate; anterolateral corner rounded; posterior margin emarginate. Eye slightly depressed. Antennal scale lanceolate with rounded apex; all margins setose; subapical suture present. Antennal sympod with spiniform process at outer distal angle.

Labrum with anterior spiniform process. Carpopropodus of endopods of third to eighth thoracic limbs divided into 4 or 5 subsegments. All pleopods, except fourth of male, reduced to unsegmented single lobe, gradually increasing in length from first to fifth. Fourth pleopod of male biramous; endopod reduced to unsegmented lobe; exopod elongated, 2-segmented with long proximal segment and short distal segment, armed terminally with 2 long, subequal setae. Pseudobranchial lobe of all pleopods poorly developed. Endopod of uropod armed with more than 20 spines along inner margin. Telson elongated triangular or linguiform, armed all along its lateral margins with subequal spines.

Etymology. Derived from the Greek prefix “*hemi-*” and the genus *Acanthomysis*; gender feminine.

Remarks. *Hemiacanthomysis* is distinguished from *Acanthomysis* as redefined by Holmquist (1981b) and its related genera by the numerous spines along the inner margin of the endopod of the uropod. The new genus is also distinguished from *Acanthomysis*, *Notacanthomysis* Fukuoka and Murano, 2000, and *Hyperacanthomysis* Fukuoka and Murano, 2000 by the armature of the telson. The telson of *Hemiacanthomysis* is armed with spines all along the lateral margins, whereas those of *Acanthomysis* and *Hyperacanthomysis* have an unarmed interval on each side (Holmquist 1981b; Fukuoka and Murano 2000b) and that of *Notacanthomysis* is unarmed proximally (Fukuoka and Murano 2000a).

Acanthomysis ornata Tattersall, 1965, remaining in *Acanthomysis s. lat.*, also has a row of spines along the inner margin of the endopod of the uropod. However, *A. ornata* is excluded from *Hemiacanthomysis* on the basis of the following characters: the carpopropodus of the endopod of all but the first and second thoracic limbs is divided into three subsegments; the distal exopodal segment of the fourth pleopod of the male is half the length of the proximal segment and armed with two unequal terminal setae; the spines of the uropodal endopod are large, evenly spaced, and curved; and the lateral spines of the telson are regularly spaced, downwardly directed, and curved (Tattersall 1965).

Hemiacanthomysis dimorpha (Ii, 1936), comb. nov.
(Figs 1, 2)

Acanthomysis dimorpha Ii, 1936: 593–597, figs 33–46 (type locality: off Ulsan, southeastern Korea); Banner 1948: 85, 87 (key); Gordan 1957: 337 (list); Ii 1964: 473–476, fig. 120; Taniguchi 1969: 48–49, fig. 6; Mauchline and Murano 1977: 44 (list); Müller 1993: 191 (list).

Material examined. NSMT-Cr 14229, damaged male (11.2 mm); Akkeshi, eastern Hokkaido, northern Japan, 19 Apr. 1990, provided by Y. Hanamura. NSMT-Cr 14230, immature male (8.2 mm); off Tomakomai, southern Hokkaido, northern Japan, 12 m, Smith-McIntyre grab, date unknown, provided by Y. Hanamura.

Description of male. Body robust and smooth. Second to eighth thoracic somites with blunt, knob-like sternal process armed with several spinules on head.

Carapace anteriorly produced into triangular rostral plate with obtusely pointed apex and concave lateral margins; apex reaching base of antennular peduncle (Fig. 1A). Anterolateral corner of carapace rounded; posterior margin

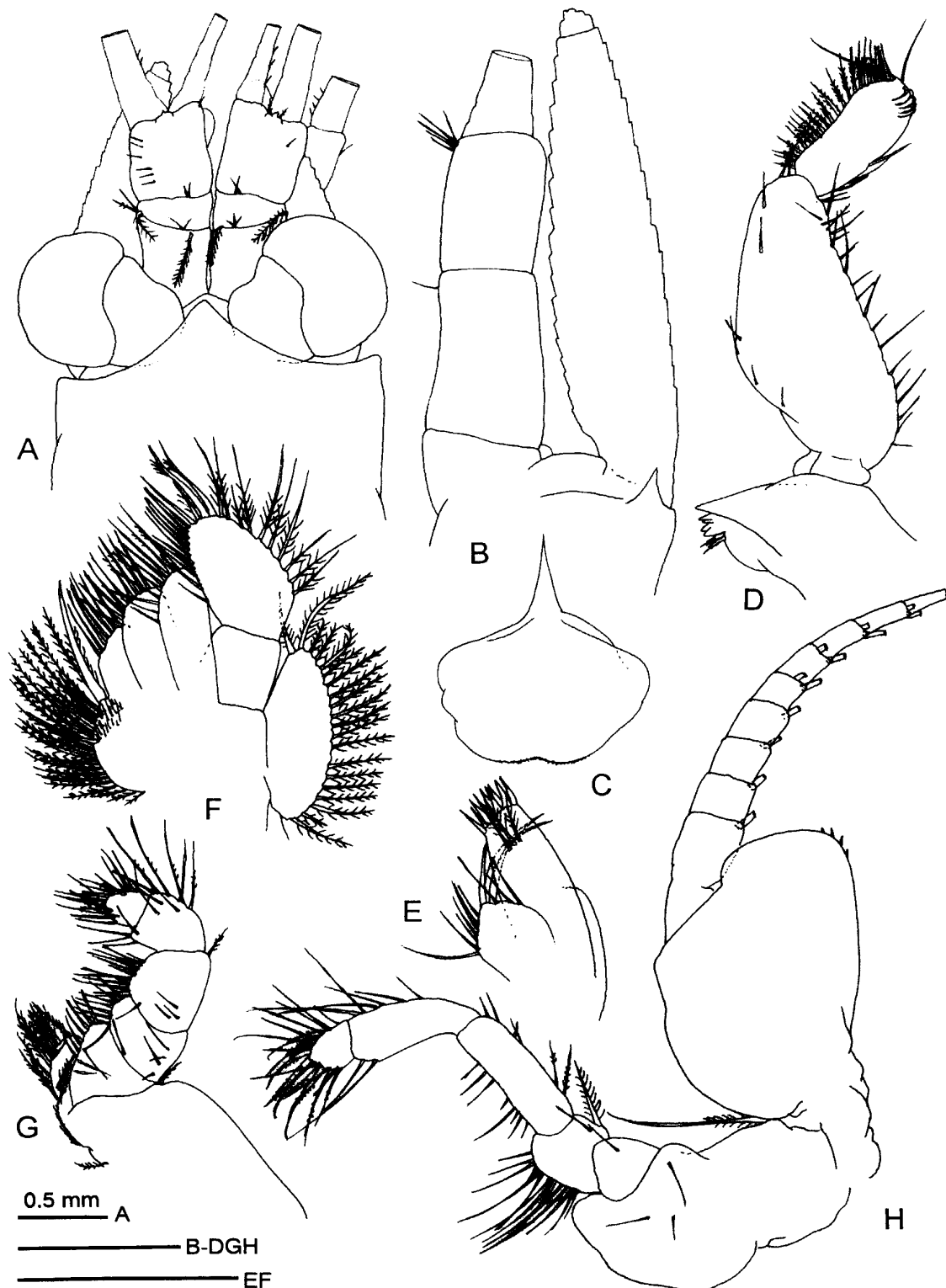


Fig. 1. *Hemiacanthomysis dimorpha* (Ii, 1936), comb. nov., male (11.2 mm, NSMT-Cr 14229). A, anterior part of carapace and cephalic appendages, dorsal; B, left antenna, ventral; C, labrum, ventral; D, left mandible; E, left maxillule, posterior surface; F, left maxilla, posterior surface; G, endopod of left first thoracic limb, posterior surface; H, left second thoracic limb, posterior surface.

smooth, emarginate, leaving last 2 thoracic somites exposed dorsally.

Eye large, slightly depressed, 1.1 times as long as broad; cornea wider than eyestalk, reniform, occupying slightly more than half of eye in dorsal view; eyestalk smooth, without papilla on dorsal surface (Fig. 1A).

Antennular peduncle with first segment 1.2 times as long as broad and armed with long, backwards directed, plumose seta at each distal corner; third segment slightly longer than first (Fig. 1A).

Antennal scale lanceolate with rounded apex, extending slightly beyond apex of appendix masculina of antennular peduncle, 4.6 times as long as broad; all margins setose; subapical suture present (Fig. 1B). Antennal peduncle extending to distal fourth of antennal scale; second segment 1.7 times as long as broad; third segment 0.8 length of second, 1.5 times as long as broad (Fig. 1B). Antennal sympod with spiniform process at outer distal angle (Fig. 1B).

Labrum with long, spiniform anterior process occupying about 0.4 of entire length (Fig. 1C). Second segment of mandibular palp expanded medially, 2.1 times as long as broad; third segment about half as long as second (Fig. 1D). Maxillule with inner lobe armed with 3 setae on outer margin, 3 long, stout, barbed spiniform setae and 1 slender seta on distal margin, and 9 setae on inner margin; outer lobe armed with 12 stout spines on distal margin and 3 setae on upper surface; outer margin with swelling in middle (Fig. 1E). Maxilla with exopod extending to distal margin of proximal segment of endopod and armed with plumose setae on outer and apical margins; endopod with distal segment 1.6 times as long as broad and without spines on outer margin; endite of basis with several setae and numerous spinules on surface (Fig. 1F).

Endopod of first thoracic limb short and robust, with preischium, ischium, and merus slightly expanded medially (Fig. 1G). Endopod of second thoracic limb with merus 1.2 times as long as carpopropodus (Fig. 1H). Endopods of third to eighth thoracic limbs slender, with carpopropodus divided into 4 subsegments by transverse articulations; dactylus with long and slender claw (Fig. 2A). Exopods of thoracic limbs with flagellum 8-segmented in first and eighth pairs and 9-segmented in second to seventh pairs (Fig. 1H); basal plate armed with several spinules on outer distal corner (Fig. 1H).

Penis 1.9 times as long as broad in lateral view, armed with 6 setae on posterior margin and 11 inwardly curved setae on outer distal margin; distal fourth of medial surface armed densely with minute setae (Fig. 2B).

All abdominal somites lacking folds or spine rows; first to fourth somites subequal; fifth somite 1.3 times as long as fourth; sixth somite 1.2 times as long as fifth.

First to third pleopods each reduced to unsegmented single lobe, gradually increasing in length posteriorly (Fig. 2C–E). Fourth pleopod biramous; endopod reduced to unsegmented lobe; exopod developed, elongated, extending to posterior third of last abdominal somite, 2-segmented with proximal segment 1.4 times longer than endopod and armed with short seta at each distal corner; distal segment about 0.14 length of proximal segment, armed with 1 short seta at outer distal corner and 2 long, barbed setae on terminal end, latter setae subequal in length and about 4 times as long as terminal segment (Fig. 2F). Fifth pleopod reduced to unsegmented single lobe, slender, 1.5 times as long as third pleopod (Fig. 2G). Pseudobranchial lobe poorly developed (Fig. 2C–G).

Endopod of uropod overreaching distal end of telson for 0.16 of its length,

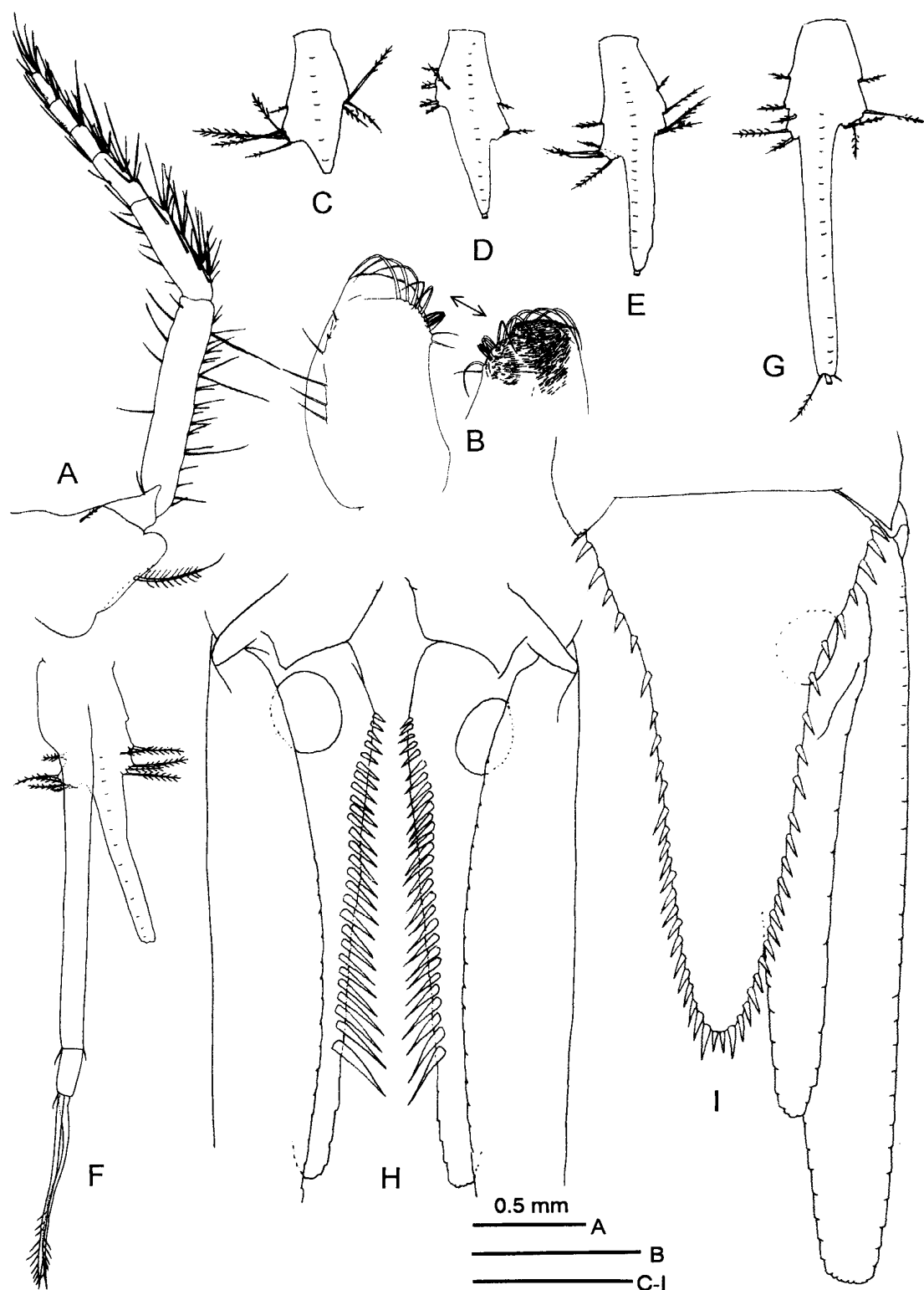


Fig. 2. *Hemiacanthomysis dimorpha* (Ii, 1936), comb. nov., male (11.2 mm, NSMT-Cr 14229). A, endopod of right third thoracic limb, lateral; B, left penis, lateral (left) and medial (right); C-E, left first to third pleopods, lateral; F, right fourth pleopod, lateral; G, left fifth pleopod, lateral; H, uropod, ventral; I, telson and uropod, dorsal.

armed along inner ventral margin from statocyst region to distal fourth with 27–29 spines; these spines gradually becoming longer distally (Fig. 2H, I). Exopod of uropod overreaching distal end of endopod for 1/5 of its length (Fig. 2I).

Telson triangular with narrowly rounded apex, 1.3 times as long as last abdominal somite, twice as long as broad at base; lateral margin concave in proximal half and slightly convex in distal half, armed along its entire length with 23–25 subequal spines arranged sparsely in proximal half and densely in distal half; apical margin with 2 pairs of spines, inner spines about 3/5 length of outer ones (Fig. 2I).

Remarks. Type specimens (syntypes, Ii's coll. No. 4) could not be examined because they had dried up. The present specimens collected from Hokkaido agree well with the original description and illustration by Ii (1936).

Hemiacanthomysis dimorpha is distinguished from the remaining species of *Acanthomysis* s. lat. distributed in East Asian coastal waters by the spine arrangement on the lateral margin of the telson. In *H. dimorpha* these spines are subequal, whereas in the latter species they are arranged in a series of groups, each consisting of several smaller spines and a larger spine (Nakazawa 1910; Ii 1964; Liu and Wang 1980, 1983; Murano 1984, 1991; Shen *et al.* 1989).

According to Ii (1936, 1964), the present species shows a sexual dimorphism in the telson as follows: the telson is triangular with a narrowly truncate apex armed with two pairs of spines in males, whereas in females it is linguiform with a broadly rounded apex armed with several spines as long as the lateral ones.

Distribution. *Hemiacanthomysis dimorpha* has been recorded from off Ulsan, southeastern Korea (Ii 1936), the East Korean Gulf (40°00'N 128°15'E) (Ii 1964), and off southern and eastern Hokkaido, Japan (Taniguchi 1969; the present study). Taniguchi (1969) collected this species from the near-bottom layer at a depth of 75 m. This species is a coastal form in cold-water regions.

Acknowledgments

We thank Dr. Y. Hanamura of the National Research Institute of Fisheries and Environment of Inland Sea for the donation of the material.

References

- Banner, A. H. 1948. A taxonomical study of the Mysidacea and Euphausiacea (Crustacea) of the northeastern Pacific. Part II, Mysidacea, from tribe Mysini through subfamily Mysidellinae. Transactions of the Royal Canadian Institute 26: 65–125.
- Fukuoka, K. and Murano, M. 2000a. Taxonomic position of *Acanthomysis quadrispinosa* and establishment of a new genus, *Notacanthomysis*, for *Acanthomysis hodgarti* and *A. laticauda* (Crustacea: Mysidacea: Mysidae). Species Diversity 5: 23–37.
- Fukuoka, K. and Murano, M. 2000b. *Hyperacanthomysis*, a new genus for *Acanthomysis longirostris* Ii, 1936, and *A. brevirostris* Wang & Liu, 1997 (Crustacea: Mysidacea: Mysidae). Plankton Biology and Ecology 47: 122–128.
- Fukuoka, K. and Murano, M. 2001. *Telacanthomysis*, a new genus, for *Acanthomysis columbiae*, and redescription of *Columbiaemysis ignota* (Crustacea: Mysidacea: Mysidae).

- Proceedings of the Biological Society of Washington 114: 197–206.
- Gordan, J. 1957. A bibliography of the order Mysidacea. Bulletin of the American Museum of Natural History 112: 283–393.
- Holmquist, C. 1979. *Mysis costata* Holmes, 1900, and its relations (Crustacea, Mysidacea). Zoologische Jahrbücher, Abteilung für Systematik, Ökologie, und Geographie der Tiere 106: 471–499.
- Holmquist, C. 1980. *Xenacanthomysis*—a new genus for the species known as *Acanthomysis pseudomacropsis* (W. M. Tattersall, 1933) (Crustacea, Mysidacea). Zoologische Jahrbücher, Abteilung für Systematik, Ökologie, und Geographie der Tiere 107: 501–510.
- Holmquist, C. 1981a. *Exacanthomysis* gen. nov., another detachment from the genus *Acanthomysis* Czerniavsky (Crustacea, Mysidacea). Zoologische Jahrbücher, Abteilung für Systematik, Ökologie, und Geographie der Tiere 108: 247–263.
- Holmquist, C. 1981b. The genus *Acanthomysis* Czerniavsky, 1882 (Crustacea, Mysidacea). Zoologische Jahrbücher, Abteilung für Systematik, Ökologie, und Geographie der Tiere 108: 386–415.
- Ii, N. 1936. Studies on Japanese Mysidacea I. Descriptions of new and some already known species belonging to the genera, *Neomysis*, *Acanthomysis* and *Proneomysis*. Japanese Journal of Zoology 6: 577–619.
- Ii, N. 1964. *Mysidae (Crustacea). Fauna Japonica*. Biogeographical Society of Japan, Tokyo, 610 pp.
- Liu, R. and Wang, S. 1980. Five new species of the genus *Acanthomysis* (Crustacea Mysidacea) from the South China Sea. Oceanologia et Limnologia Sinica 11: 320–334. [In Chinese with English abstract and description]
- Liu, R. and Wang, S. 1983. On three new species of Mysidacea (Crustacea) from the coastal waters of Guangdong, China. Oceanologia et Limnologia Sinica 14: 522–530. [In Chinese with English abstract and description]
- Mauchline, J. and Murano, M. 1977. World list of Mysidacea, Crustacea. Journal of the Tokyo University of Fisheries 64: 39–88.
- Müller, H.-G. 1993. *World Catalogue and Bibliography of the Recent Mysidacea*. Wissenschaftlicher Verlag, Tropical Products Trading Center, Wetzlar, Germany, 491 pp.
- Murano, M. 1984. Two new species of *Acanthomysis* (Crustacea, Mysidacea) from Japan. Bulletin of the National Science Museum, Tokyo, Series A (Zoology) 10: 107–116.
- Murano, M. 1991. Two new species of the tribe Mysini (Crustacea, Mysidacea) and a new record of *Acanthomysis quadrispinosa* from Japan. Bulletin of the National Science Museum, Tokyo, Series A (Zoology) 17: 81–91.
- Nakazawa, K. 1910. Notes on Japanese Schizopoda. Annotations Zoologicae Japonenses 7: 247–261.
- Shen, J., Liu, R. and Wang, S. 1989. Mysidacea in waters off the North China coasts. Studia Marina Sinica 30: 189–227. [In Chinese with English abstract and description]
- Taniguchi, A. 1969. Mysidacea and Euphausiacea collected in the south-west of Hokkaido, Japan. Bulletin of the Faculty of Fisheries, Hokkaido University 20: 43–59.
- Tattersall, O. S. 1965. Report on a small collection of Mysidacea from the northern region of the Malacca Strait. Journal of Zoology 147: 75–98.